Teaching Quality Adjusted Life Years (QALYs)

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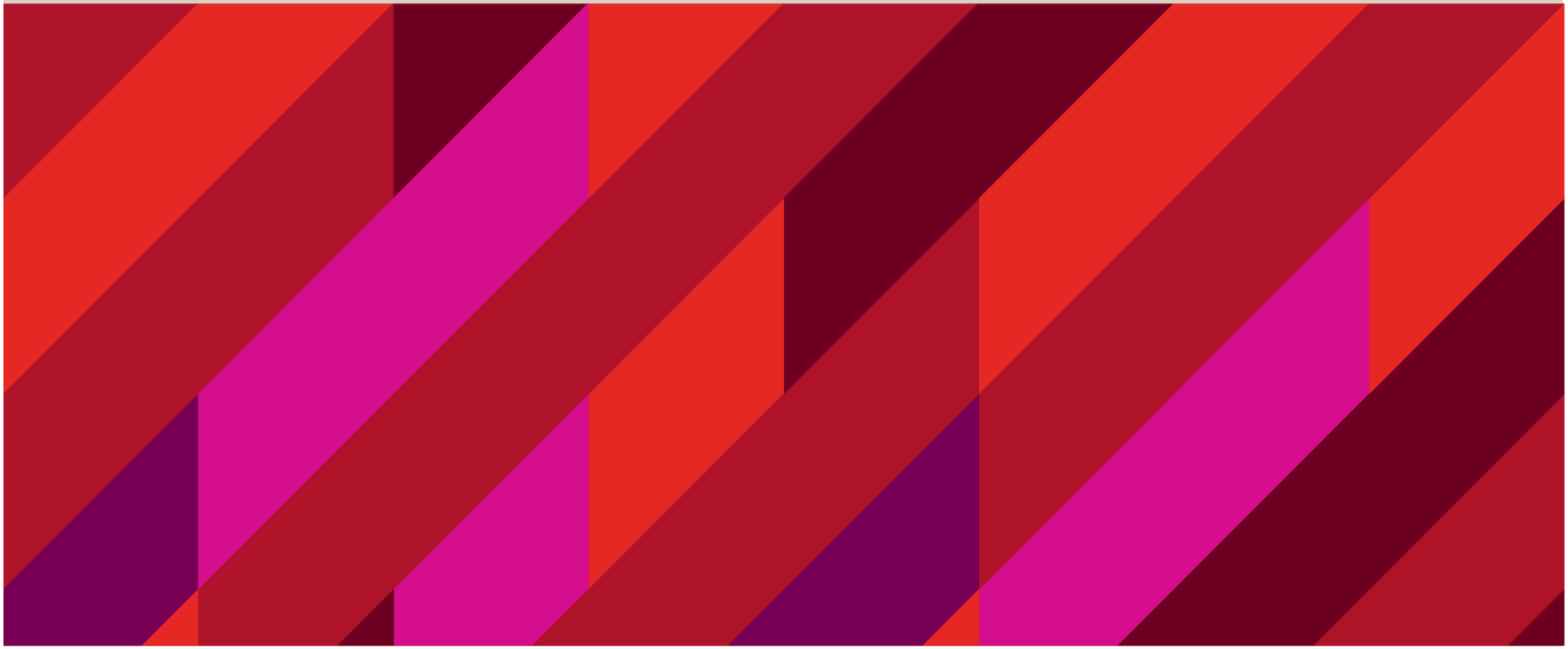
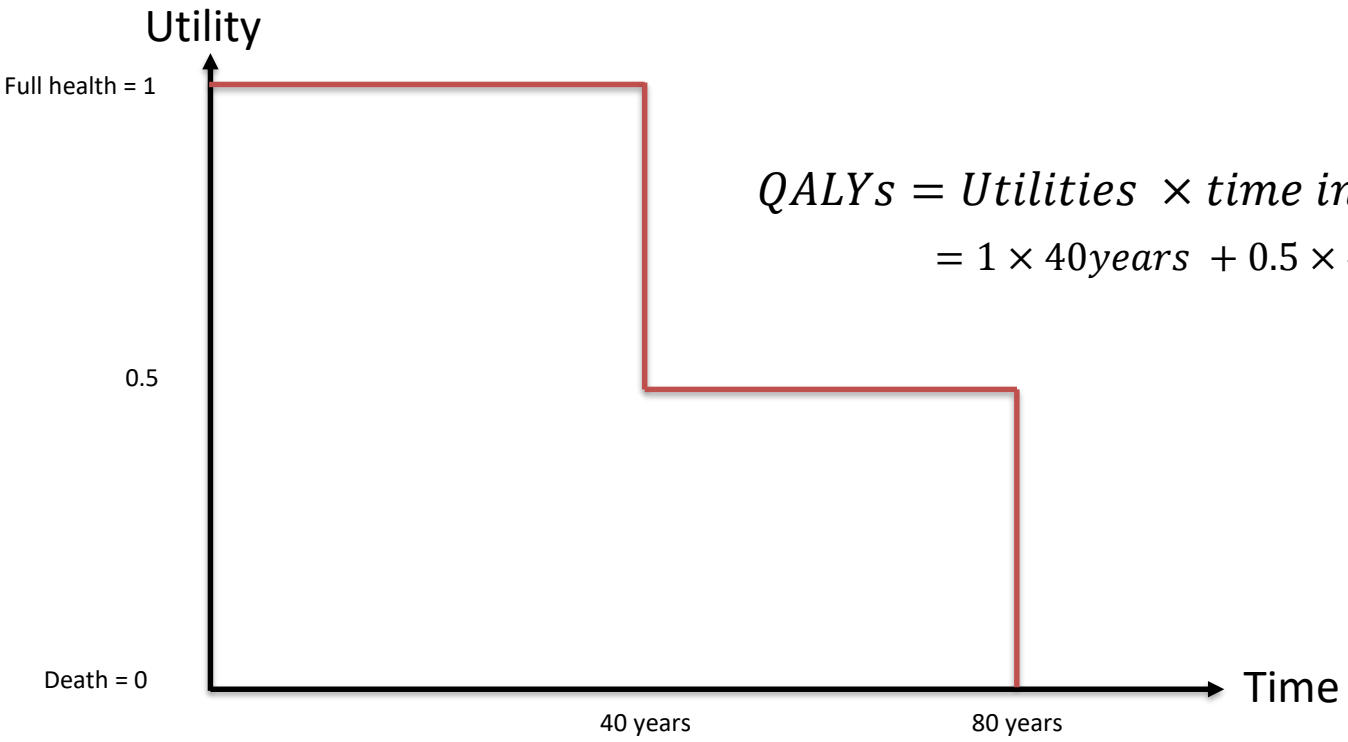


Teaching Quality Adjusted Life Years (QALYs)

Teaching what is a QALY and how it is calculated is conceptually simple.



$$QALYs = Utilities \times time\ in\ each\ health\ state$$
$$= 1 \times 40 years + 0.5 \times 40 years = 60\ QALYs$$

Teaching Quality Adjusted Life Years (QALYs)

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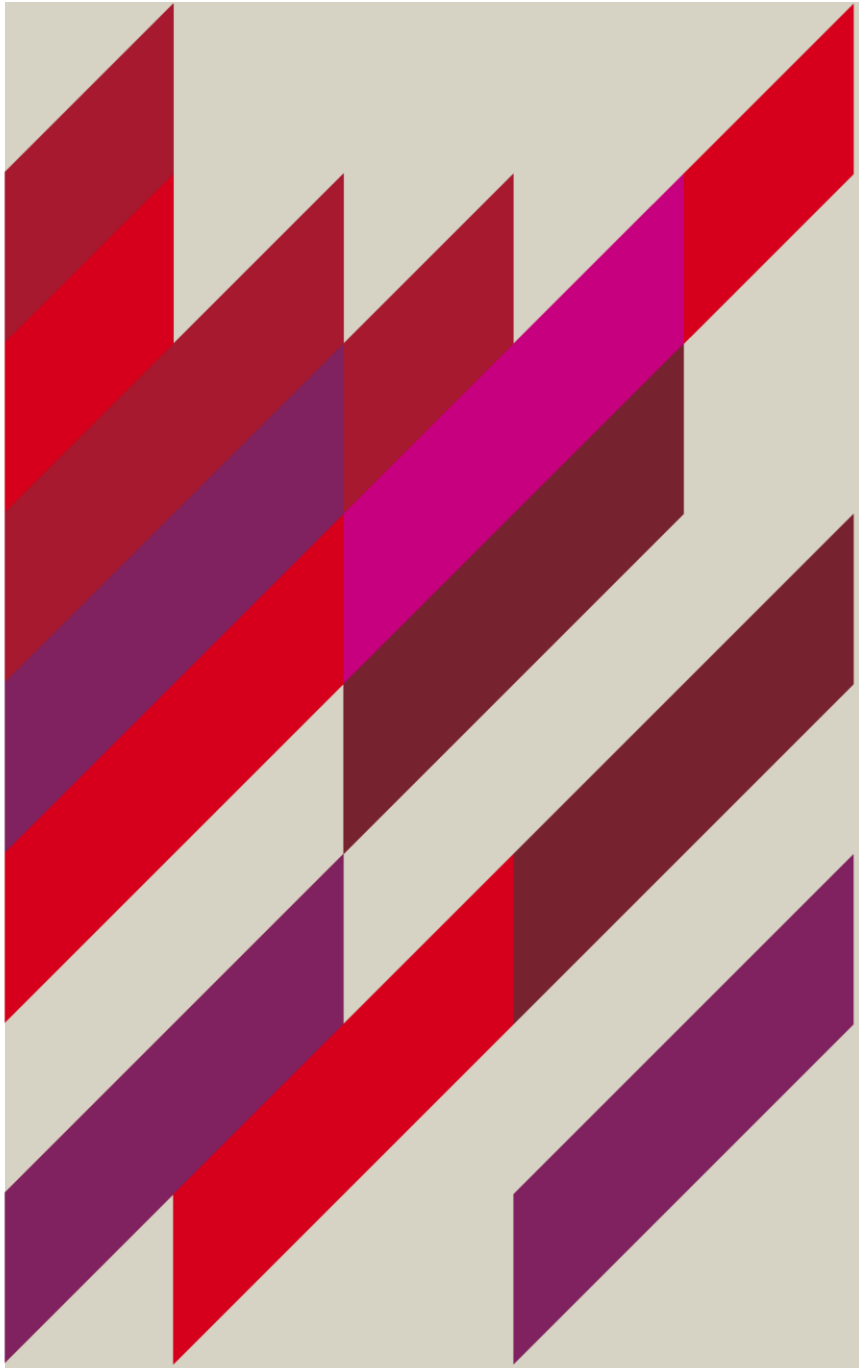
Students also often understand the argument why decision makers prefer QALYs

- Comparison across different treatments and diseases to enable funding decisions.

But:

- Students often ask “but how do you measure quality of life / utilities”?
- Skeptical that measuring quality of life is even possible.
- Time trade-off and standard gamble can be hard to understand.

These can be addressed using a practical example, which can also facilitate discussion.



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The Exercise

Preparation

You will need:

- Two copies of the paper exercise for each student.
- Four copies of the EQ-5D-3L self-complete version on paper, available at: https://euroqol.org/wp-content/uploads/2016/09/EQ-5D-3L_UserGuide_2015.pdf (page 5)
- A copy of the Excel spreadsheet.
- Pens
- A stapler

One copy of the paper exercise and EQ-5D-3L is kept by the student for revision, the others are provided back to you.

Preparation

Remember to set up the Excel spreadsheet before class with:

1. The number of students in the class, and
2. The tariff for your chosen country entered into the 'EQ-5D Calcs' worksheet.

I prefer the UK tariff as it is more likely to result in utilities < 0, but you may want to pick a tariff more relevant to your country.

Tariffs available at:
https://euroqol.org/eq-5d-instruments/eq-5d-3l-about/valuation/

Questions

Emphasize to students that the exercise is anonymous and do not write their names on the exercise, but the students need to write the name of the condition on the EQ-5D-3L sheets.

There are no right or wrong answers.

Conditions

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Ask students to imagine that they are a patient with one of the following conditions (repeat for the next condition)

Condition	Reason for using this condition
A. Blind	Everyone can imagine being blind Expect utility ~ 0.5 Lots of preference heterogeneity
B. Quadriplegia	Expect utility ~ 0 EQ-5D-3L utility value using UK tariff < 0.
C. Eczema	Expect utility ~ 1

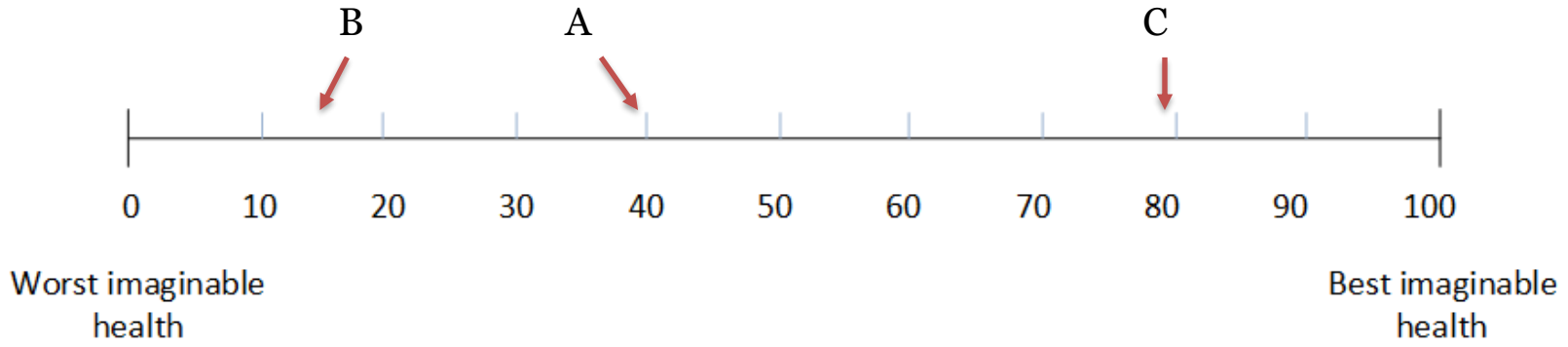
Students can imagine what it is like to be blind, but may have less experience with quadriplegia and eczema → Describe conditions using vignettes.

Feel free to change the condition, but aim to have a range of conditions in terms of severity.

Questions

VISUAL ANALOG SCALE

For each condition, indicate with a line cutting the VAS and writing A, B or C, where you believe your experience of each of the conditions lies with respect to the best and worst imaginable health:



Raise that technically should ask respondents to indicate death but for the purposes of the exercise (too time consuming to measure distance from death) just ignore for now.

Questions

STANDARD GAMBLE

Imagine your life expectancy is 10 years and during this time you are either blind (A), have quadriplegia (B), or have eczema (C).

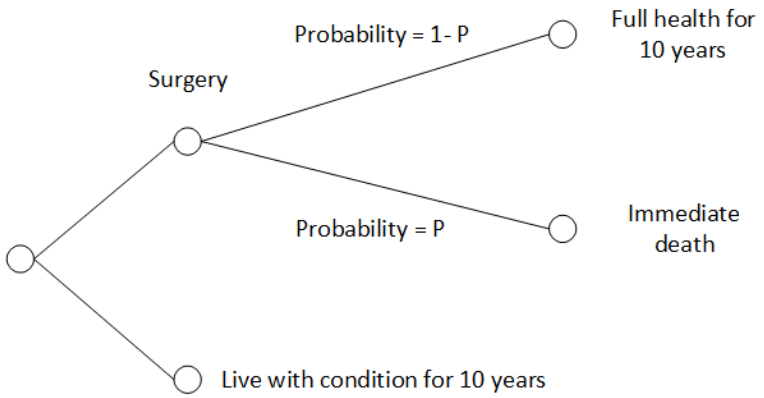
Surgery can return you back to full health **BUT** there's a risk of death (P).

What level of risk of death are you indifferent between you remaining in the health state and undergoing surgery?

Blind (A) _____%

Quadriplegia (B) _____%

Eczema (C) _____%



Note: 0% = not willing to take any risk, 100% = certain death.

Questions

TIME TRADE-OFF

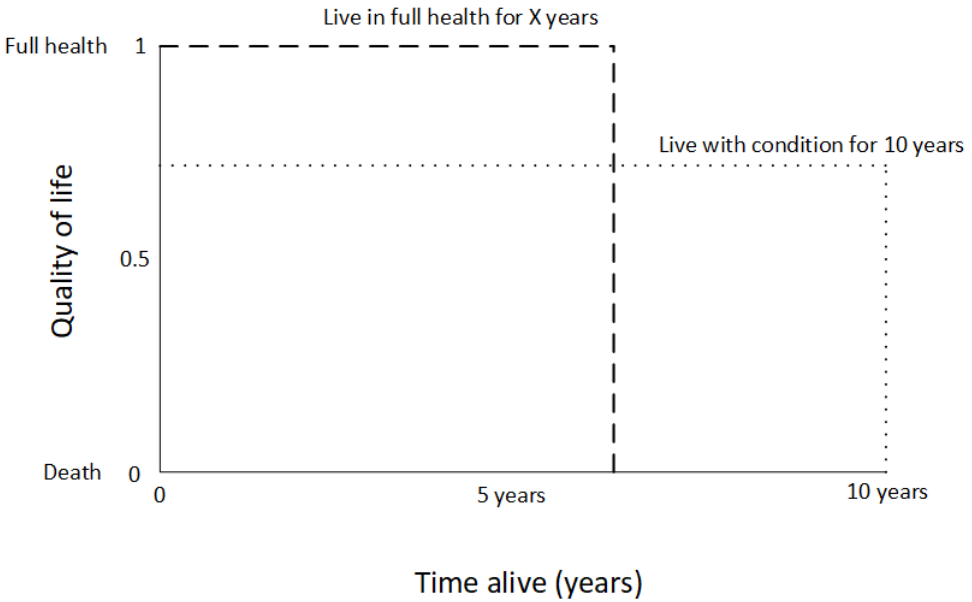
Imagine your life expectancy is 10 years and during this time you are either blind (A), have quadriplegia (B), or have eczema (C).

How much life expectancy are you willing to give up so that you can return to full health for the remaining period? e.g. giving up 6 years means that you will experience 4 years in full health.

Blind (A) _____years

Quadriplegia (B) _____years

Eczema (C) _____years



Questions

EQ-5D-3L

For each condition complete the EQ-5D-3L.

Make sure the students don’t miss out a question!

Presenting results

1. Show the students the "Data" sheet to show that you have entered their data.

2. Show the students the "Conditions Compared" sheet.

3. Show the "Methods Compared" sheet.

Discussion points

Discussion points

Cognitive difficulty:

- EQ-5D less demanding that SG and TTO
- SG = respondents need to understand probabilities
- SG and TTO = Consider face-to-face administration.

Who to survey:

- Can they complete survey? Dementia/mental health patients? Children?
- Which approach? EQ-5D versus SG and TTO? CHU-9D?
- What are the alternatives? Carers? Nurses/doctors? General population?

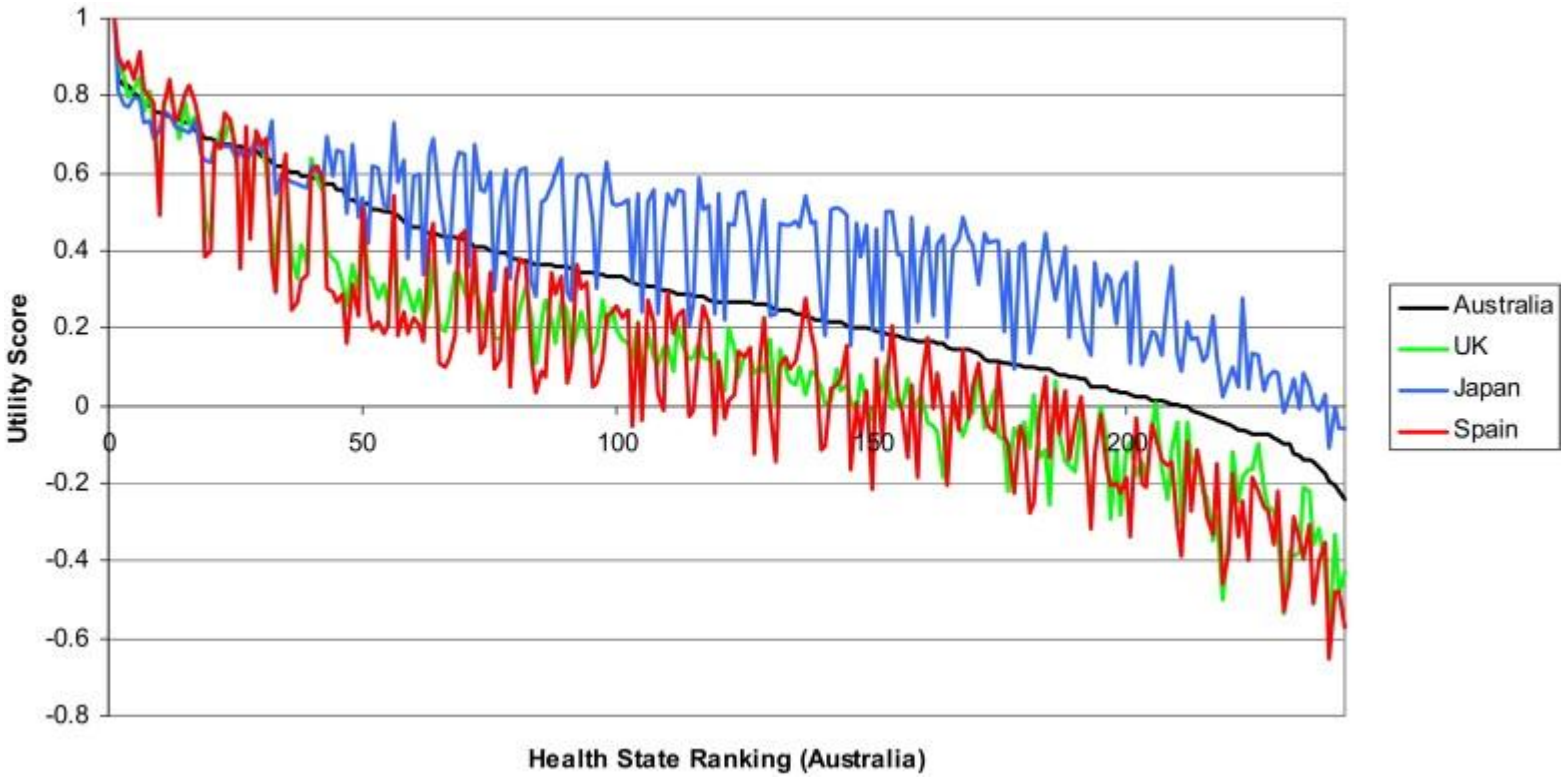
Discussion points

Result	Discussion point
Utility eczema > blindness > quadriplegia	Face validity that all the methods can be used to estimate quality of life.
Individual results	Preference heterogeneity
VAS individual results	Tendency for respondents to avoid using the ends of the scale, to use the 5 or 10 calibration marks, and to space out health states evenly

Discussion points

Result	Discussion point
Utility with VAS < other methods	VAS does not involve trade-offs → technically not a utility measure.
Utility with SG > Utility with TTO	Confounded by risk preferences (also discuss time preferences for TTO).
Utility for quadriplegia for EQ-5D < 0	State worse than death. Who to survey? • Patients: Don't have to imagine health state. May overestimate utility due to adaption/accommodation. Biases ICER against treatments that improve quality of life. • General public: Have to imagine health state. Underestimate utility. Biases ICER in favour of treatments that improve quality of life.. Tariffs and cultural differences. Benefits of EQ-5D-5L versus EQ-5D-3L.

Discussion points



Source: Viney R, Norman R, King MT, Cronin P, Street DJ, Knox S, Ratcliffe J. Time trade-off derived EQ-5D weights for Australia. Value Health. 2011 Sep-Oct;14(6):928-36. Available:

http://www.sciencedirect.com/science/article/pii/S1098301511014926

Discussion points

Strengths and weaknesses of multi-attribute utility instruments (MAUIs) (e.g. EQ-5D):

STRENGTHS

- Ease of administration.
- Measurement of quality of life in patients.
- General population valuation.

WEAKNESSES

- May not be sensitive to the relevant health states.
- Only as good as the instrument (dimensions included, number of levels).

Discussion points

Face validity:

- Patients face a risk of death with all surgeries in real life.
- Temporary health states (e.g. a cold) – unbelievable and people unwilling to trade.

Other:

- States close to death – people unwilling to trade.

Key learnings from past experience

Strengths and weaknesses

Strengths:

- Students better understand how the methods are applied in practice and are more likely to remember.
- Proof that the approaches work.
- Facilitates discussion.

Weaknesses:

- Results more variable for lower sample size (e.g. no states worse than death), although it has worked for classes = 8.
- Students don't know what eczema is and so results highly driven by vignettes (especially EQ-5D).
- Time to input results in Excel file (especially if lots of students) → input results over break / use an assistant

Have fun!

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